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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,708

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Arjan Franklin Bakker

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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EXAMINER

TURNER, SAMUEL A

ART UNIT

PAPER NUMBER

2877

MAIL DATE

DELIVERY MODE

02/23/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/597,708	<b>Applicant(s)</b> BAKKER, ARJAN FRANKLIN	
	<b>Examiner</b> SAMUEL A. TURNER	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Status of the Claims*

Claims 1-9 are pending in the application.

### *Response to Arguments*

Applicant's arguments filed 22 October 2009 with respect to claims 1-9 have been fully considered but they are not persuasive.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Applicant's arguments with respect to the rejection of claims 1, 2 and 6-9 under 35 U.S.C. § 103(a) as unpatentable over Hill(6,650,419) in view of Cameron(5,363,196) have been considered and are not persuasive, see pages 5 and 6 of Applicant's remarks.

Applicant's arguments with respect to the rejection of claims 3-5 under 35 U.S.C. § 103(a) as unpatentable over Hill(6,650,419) and Cameron(5,363,196) in view of Hamada et al(6,570,641) have been considered and are not persuasive, see page 7 of Applicant's remarks.

Applicant argues that Hill fails to teaches a second Z-axis measurement interferometer with a corresponding second X-axis elongated mirror mounted to the stage. Applicant also argues that there is no teaching or suggestion in either Cameron or Hamada et al of a second X-axis elongated mirror mounted to the stage.

The examiner recognizes that references cannot be arbitrarily modified and that there must be some reason why one skilled in the art would be motivated to make the proposed modification. However, there is no requirement that a motivation to make the modification be expressly articulated in the prior art reference. The teaching-suggestion-motivation rationale is still used, but is only one of the rationales that office personal consider. The determination of obviousness is based on what a person of ordinary skill in the art would have known at the time of invention and on what such a person would have reasonably expected to have been able to do in view of that knowledge, regardless of whether the source of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense. A person of ordinary skill is a person of ordinary creativity, not an automation, see *KSR v. Teleflex* 82 USPQ2d 1395.

Hill teaches a Z-axis measurement interferometer mounted on the stage having one elongated mirror mounted on the chuck along the X-axis(the axis of motion of the chuck) and one elongated mirror mounted on the base along the Y-axis(the axis of motion of the stage). In this configuration the interferometer beams will always reflect from a portion of the chuck and base elongated mirrors.

The prior art, as disclosed in Cameron, multiple interferometers are used to measure displacement and rotation about multiple orthogonal axes. In Cameron a total of six interferometers are used to measure displacement along the X and Y axes and rotation about X, Y and Z axes. In figure 2 interferometers 208, 210 and 212 measure displacement along the X-axis which provide a first set of multiple redundancies. Interferometers 216, 218 and 220 measure displacement along the Y-axis which provide a second set of multiple redundancies. The combination of X-axis interferometers 208 and 210 and the combination of Y-axis interferometers 216 and 218 measure the rotation about the Z-axis and provide a third redundancy.

Figure 2a shows an eight interferometer embodiment(only the Y-axis interferometers are shown) which provides additional redundancies for rotation about the X-axis and the Y-axis. These redundancies are important for mirror calibration.

With regard to claims 1 and 7, while Hill fails to teach a second Z-axis measurement interferometer mounted on the stage having a second elongated mirror mounted on the chuck along the X-axis the skilled artisan would have recognized that the addition of a second Z-axis interferometer would provide a Z-axis displacement redundancy and an additional redundancy for rotation about the X-axis.

The skilled artisan would have recognized that a simple duplication of parts would provide the desired redundancies. The second interferometer could be

mounted on the same support 306 as the Z-axis interferometer 308. However, this configuration may block the input/output beams of the Z-axis interferometer 308.

Adding a second support 306 and Z-axis interferometer to the stage on the opposite side of the chuck with a second X-axis elongated mirror mounted on the opposite side of the chuck from elongated mirror 340 to reflect the beams from the second Z-axis interferometer would provide the desired redundancies without blocking the input/output beams of the Z-axis interferometer 308. This would provide mirror calibration for the base mirror 310. Additional supports and Z-axis interferometers can be added for mirror calibration for mirror 340 and the second X-axis elongated mirror mounted on the opposite side of the chuck from elongated mirror 340. The various mirror calibrations provide mirror shape compensation to the multiple interferometers during operation. Claims 2-6, 8 and 9 are unpatentable for the same reasons as claims 1 and 7.

***Action Made Final***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is 571-272-2432.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on 571-272-2800 ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Samuel A. Turner/  
Primary Examiner  
Art Unit 2877